

APPENDIX I

GLOSSARY

A-SCOPE—A radar display on which slant range is shown as the distance along a horizontal trace.

ACQUISITION—Operational phase of a fire- control or track radar during which the radar system searches a small volume of space in a prearranged pattern.

AIR-CONTROL PANEL—Panel that monitors the dry-air input at each user equipment.

ALTITUDE—Vertical distance of an aircraft or object above a given reference, such as ground or sea level.

AMBIGUOUS RETURNS—Echoes that exceed the prt of a radar and appear at incorrect ranges.

AMPLITRON—See Crossed-Field Amplifier.

ANTENNA BEAM WIDTH—Width of a radar beam measured between half-power points

ANTENNA SYSTEM—Routes rf energy from the transmitter, radiates the energy into space, receives echoes, and routes the echoes to the receiver.

ANTIJAMMING CIRCUIT—Electronic circuit used to minimize the effects of enemy countermeasures, thereby permitting radar echoes to be visible on the indicator.

ANTITRANSMIT-RECEIVE TUBE (atr)—Tube that isolates the transmitter from the antenna and receiver. Used in conjunction with tr tube.

ARTIFICIAL TRANSMISSION LINE—An LC network that is designed to simulate characteristics of a transmission line.

ASYMMETRICAL MULTIVIBRATOR—Multivibrator that generates rectangular waves.

AUTOMATIC GAIN CONTROL—Circuit used to vary radar receiver gain for best reception of signals that have widely varying amplitudes.

AVERAGE POWER—Output power of a transmitter as measured from the start of one pulse to the start of the next pulse.

AZIMUTH—Angular measurement in the horizontal plane in a clockwise direction.

BALANCED MIXER—Waveguide arrangement that resembles a T and uses crystals for coupling the output to a balanced transformer.

BEAM—See Lobe.

BEARING RESOLUTION—Ability of a radar to distinguish between targets that are close together in bearing.

BEAT FREQUENCIES—Difference and sum frequencies which result from combining two different frequencies.

BLIP—See Pip.

BLOCKING—A condition in an amplifier, caused by overdriving one or more stages, in which the amplifier is insensitive to small signals immediately after reception of a large signal.

BROADSIDE ARRAY—An antenna array in which the direction of maximum radiation is perpendicular to the plane of the array.

BUFFER AMPLIFIER STAGE—Amplifier stage that isolates one circuit from another.

CARRIER FREQUENCY—The frequency of an unmodulated transmitter output.

CARRIER-CONTROLLED APPROACH—Shipboard radar system used to guide aircraft to safe landings in poor visibility conditions.

CLUTTER—Confusing, unwanted echoes that interfere with the observation of desired signals on a radar indicator.

COHERENCE—A definite phase relationship between two energy waves, such as transmitted frequency and reference frequency.

COHERENT OSCILLATOR—In cw radar this oscillator supplies phase references to provide coherent video from target returns.

CONICAL SCANNING—Scanning in which the movement of the beam describes a cone, the axis of which coincides with that of the reflector.

CONTACT—In radar, an object that reflects rf energy; target.

CORNER REFLECTOR—Two flat reflectors that meet at an angle and are normally fed by a half-wave radiator.

CROSSED-FIELD AMPLIFIER—High-power electron tube that converts dc to microwave power by a combination of crossed electric and magnetic fields.

CYLINDRICAL PARABOLIC REFLECTOR—A parabolically shaped reflector that resembles part of a cylinder.

DEFLECTION COILS—In a cathode-ray tube, coils used to bend an electron beam a desired amount.

DEIONIZATION TIME—In a spark gap, the time required for ionized gas to return to its neutral state after the spark is removed.

DESIGNATION—Operational phase of a fire- control or track radar during which the radar is directed to the general direction of a desired target.

DIFFERENCE FREQUENCY—See Beat Frequency.

DIODE DETECTOR—A demodulator that uses one or more diodes to provide a rectified output with an average value that is proportional to the original modulation.

DIRECTIONAL ANTENNA—An antenna that radiates most effectively in only one direction.

DIRECTIVITY—Ability of an antenna to radiate or receive more energy in some directions than in others. The degree of sharpness of the antenna beam.

DISCRIMINATOR—A circuit in which amplitude variations are derived in response to phase or frequency variations.

DISTILLED WATER—Water that has been purified through a process of evaporation and condensation.

DOPPLER EFFECT—In radar, the change in frequency of a received signal caused by the relative motion between the radar and the target.

DOPPLER FREQUENCY—Difference between transmitted and reflected frequencies; caused by the Doppler effect.

DOUBLE-MODING—In a transmitter output tube, the abrupt and random change from one frequency to another.

DRY-AIR SYSTEM—Provides dehumidified air for electronic equipment that is moisture critical.

DUCTING—Trapping of an rf wave between two layers of the earth's atmosphere or between an atmospheric layer and the earth.

DUPLEXER—A radar device that switches the antenna from the transmitter to the receiver and vice versa.

DUTY CYCLE—In a transmitter, ratio of time on to time off.

ECHO—The rf signal reflected back from a radar target.

ECHO BOX—A resonant cavity device that is used to check the overall performance of a radar system. It receives a portion of the transmitted pulse and retransmits it back to the receiver as a slowly decaying transient.

ELECTRICAL POWER SYSTEM—Provides the necessary input power.

ELECTRONIC COUNTER-COUNTERMEASURES (ECCM) CIRCUITS—See Antijamming Circuits.

ELECTRONIC EQUIPMENT DEHYDRATOR—Provides alternate dry-air input in the event of failure of the central dry-air system. May include a compressor.

ELECTRONIC FREQUENCY COUNTER—An instrument that counts the number of cycles (pulses) occurring during a precise time interval.

ELECTRONIC SCANNING—Scanning in which the axis of the beam is moved, relative to the antenna axis, in a desired pattern.

ELECTRONICS DRY-AIR BRANCH—A common line for providing dry air to various electronic equipment, such as search radar, fire-control radar, and repeaters.

ELEVATION ANGLE—The angle between the horizontal plane and the line of sight.

EMERGENCY POWER—Temporary source of limited electrical power used upon the loss of the normal power source.

EXTERNALLY SYNCHRONIZED RADAR—Radar system in which timing pulses are generated by a master oscillator external to the transmitter.

FAST-TIME-CONSTANT CIRCUIT—Differentiator circuit in the first video amplifier that allows only the leading edges of target returns, no matter how small or large, to be used.

FEEDBACK—The return of a portion of the output of a circuit to its input.

FEEDHORN—A horn radiator used to feed a reflector.

FIRST DETECTOR—See Mixer.

FREQUENCY COMPENSATION NETWORK—Circuit modification used to improve or broaden the linearity of its frequency response.

FREQUENCY SCANNING—Varying the output frequency to achieve electronic scanning.

FREQUENCY SPECTRUM—In a radar, the entire range of frequencies contained in an rf pulse or signal.

FREQUENCY SYNTHESIZER—A bank of oscillators in which the outputs can be mixed in various combinations to produce a wide range of frequencies.

GAIN—Any increase in the strength of a signal.

GATED AGC—Circuit that permits automatic gain control to function only during short time intervals.

GLOW DISCHARGE—Discharge of electricity through a gas in an electron tube.

GROUND CLUTTER—Unwanted echoes from surrounding land masses that appear on a radar indicator.

GROUND RANGE—The distance on the surface of the earth between a radar and its target. Equal to slant range only if both radar and target are at the same altitude.

GROUND-CONTROLLED APPROACH—Radar system used to guide aircraft to safe landings in poor visibility conditions.

GUIDANCE RADAR—System which provides information that is used to guide a missile to a target.

HALF-POWER POINT—A point on a waveform or radar beam that corresponds to half the power of the maximum power point.

HARD-TUBE MODULATOR—A high-vacuum electron tube modulator that uses a driver for pulse forming.

HEIGHT-FINDING RADAR—Radar that provides target altitude, range, and bearing data.

HITS PER SCAN—The number of times an rf beam strikes a target per antenna revolution.

HORIZONTAL PLANE—Imaginary plane that is tangent (or parallel) to the earth's surface at a given location.

HORN ANTENNA—See Horn Radiator.

HORN RADIATOR—A tubular or rectangular microwave antenna that is tapered and is widest at the open end.

HYBRID RING—A circular waveguide arrangement with four branches. When properly terminated, energy is transferred from any one branch into any two of the remaining three branches.

HYBRID MIXER—See Balanced Mixer.

IF AMPLIFIER—Usually a narrow-bandwidth IF amplifier that is tuned to one of the output frequencies produced by the mixer.

INDEX OF REFRACTION—The degree of bending of an rf wave when passing from one medium to another.

INDICATOR—Equipment that provides a visual presentation of target position information.

INSTANTANEOUS AUTOMATIC GAIN CONTROL (IAGC)—Circuit that can vary the gain of the radar receiver with each input pulse to maintain the output peak amplitude nearly constant.

INTERMEDIATE FREQUENCY (IF)—A lower frequency to which an rf echo is converted for ease of amplification.

KEEP-ALIVE CURRENT—See Keep-Alive Voltage.

KEEP-ALIVE VOLTAGE—Dc voltage applied to a tr gap electrode to produce a glow discharge that allows the tube to ionize faster when the transmitter fires.

KEYED-OSCILLATOR TRANSMITTER—A transmitter in which one stage is used to produce the rf pulse.

KEYER—See Synchronizer.

KLYSTRON POWER AMPLIFIER—Multicavity microwave electron tube that uses velocity modulation.

LIN-LOG AMPLIFIER—Amplifier in which the response is linear for weak signals and logarithmic for large signals.

LINE OF SIGHT—Straight line from a radar antenna to a target.

LINE-PULSING MODULATOR—Circuit that stores energy and forms pulses in the same circuit element, usually the pulse-forming network (pfm).

LIQUID-COOLING SYSTEM—Source of cooling for high-heat producing equipments, such as microwave components, radar repeaters, and transmitters.

LOBE—An area of greater signal strength in the transmission pattern of an antenna.

LOGARITHMIC RECEIVER—Receiver that uses a linear logarithmic amplifier (lin-log) instead of a normal linear amplifier.

LOW-NOISE AMPLIFIER—See Preamplifier.

MAGIC T—See Balanced Mixer.

MAGNETRON OSCILLATOR—Electron tube that provides a high power output. Theory of operation is based on interaction of electrons with the crossed electric and magnetic fields in a resonant cavity.

MASTER OSCILLATOR—In a transmitter, the oscillator that establishes the carrier frequency of the output.

MECHANICAL SCANNING—The reflector, its feed source, or the entire antenna is moved in a desired pattern.

MINIMUM DISCERNIBLE SIGNAL (MDS)—The weakest signal that produces a usable signal at the output of a receiver. The weaker the signal, the more sensitive the receiver.

MIXER—In radar, a circuit that combines the received rf signal with a local-oscillator signal to effectively convert the received signal to a lower IF frequency signal.

MODE SHIFTING—In a magnetron, shifting from one mode to another during a pulse.

MODE SKIPPING—Rather than firing on each successive pulse as desired, the magnetron fires randomly.

MODES—Operational phases (of a radar).

MODULATOR SWITCHING DEVICE—Controls the on (discharge) and off (charge) time of the modulator.

MODULATOR—Produces a high-voltage pulse that turns the transmitter on and off.

MONOPULSE (SIMULTANEOUS) LOBING—Radar receiving method using two or more (usually four) partially overlapping lobes. Sum and difference channels locate the target with respect to the axis of the antenna.

MONOPULSE RADAR—A radar that gets the range, bearing, and elevation position data of a target from a single pulse.

MONOPULSE RECEIVER—See Monopulse Lobing.

MOISTURE LAPSE—Abnormal variation of moisture content at different altitudes because of high moisture located just above large bodies of water.

MOVING TARGET INDICATOR—A device that limits the display of radar information to moving targets.

NAUTICAL MILE—The length of a minute of arc of a great circle of the earth (6,076 ft.)

NAUTICAL RADAR MILE—See Radar Mile.

NOISE—In radar, erratic or random deflection or intensity of the indicator sweep that tends to mask small echo signals.

NOISE FIGURE—The ratio of output noise to input noise in a receiver.

NUTATING—Moving an antenna feed point in a conical pattern so that the polarization of the beam does not change.

OMNIDIRECTIONAL ANTENNA—An antenna that radiates equally in all directions (nondirectional).

ORANGE-PEEL PARABOLOID—A section of a complete circular paraboloid that is narrow in the horizontal plane and wide in the vertical plane.

PARABOLIC REFLECTOR—An antenna reflector in the shape of a parabola. It converts spherical wavefronts from the radiating element into plane wavefronts.

PARALLEL-CONNECTED DUPLEXER—Configuration in which the tr spark gap is connected across the two legs of the transmission line one-quarter wavelength from the Tjunction.

PARASITIC ARRAY—An antenna array containing one or more elements not connected to the transmission line.

PEAK POWER—Maximum power of the rf pulse from a radar transmitter.

PERSISTANCE—The length of time a phosphor dot glows on a crt before disappearing.

PHANTASTRON—A variable-length sawtooth generator used to produce a sweep on an A-scope.

PIP (BLIP)—On a crt display, a spot of light or a base-line irregularity representing the radar echo.

PLANE WAVEFRONTS—Waves of energy that are flat, parallel planes and perpendicular to the direction of propagation.

PLANNED-POSITION INDICATOR—A radar display in which range is indicated by the distance of a bright spot or pip from the center of the screen and the bearing is indicated by the radial angle of the spot.

POWER GAIN—In an antenna, the ratio of its radiated power to that of a reference.

POWER-AMPLIFIER (CHAIN) TRANSMITTER—Transmitter that uses a series of power amplifiers to create a high level of power.

PREAMPLIFIER (PREAMP)—An amplifier that raises the output of a low-level source for further processing without appreciable degradation of the signal-to-noise ratio.

PRIMARY LOOP—In a cooling system, the primary source of cooling for the distilled water.

PROBE COUPLER—A resonant conductor placed in a waveguide or cavity to insert or extract energy.

PULSE WIDTH—Duration of time between the leading and trailing edges of a pulse.

PULSE-FORMING NETWORK (PFN)—An LC network that alternately stores and releases energy in an approximately rectangular wave.

PULSE-REPETITION RATE (PRR)—Average number of pulses per unit of time; pulse rate.

PULSE-REPETITION FREQUENCY (PRF)—The rate at which pulses are transmitted, given in hertz or pulses per second; reciprocal of pulse-repetition time.

PULSE-REPETITION TIME (PRT)—Interval between the start of one pulse and the start of the next pulse; reciprocal of pulse-repetition frequency.

RADAR—An acronym for RAdio Detecting And Ranging.

RADAR ALTIMETER—Airborne radar that measures the distance of the aircraft above the ground.

RADAR BEAM—The space in front of a radar antenna where a target can be effectively detected or tracked.

RADAR DISTRIBUTION SWITCHBOARD—An electrical switching panel used to connect inputs from any of several radars to repeaters.

RADAR MILE—Time interval (12.36 microseconds) for rf energy to travel out from a radar to a target and back to the radar; radar nautical mile.

RADAR TEST SET—Combination of several test circuits and equipment used to test various characteristics of a radar.

RANGE—The length of a straight line between a radar set and a target.

RANGE-HEIGHT INDICATOR—A radar display on which slant range is shown along the X axis and height along the Y axis.

RANGE-GATE—A movable gate used to select radar echoes from a very short-range interval.

RANGE MARKER—A movable vertical pulse on an A-scope or ring on a ppi scope used to measure the range of an echo or to calibrate the range scale.

RANGE RESOLUTION—Ability of a radar to distinguish between targets that are close together.

RANGE STEP—On an A-scope sweep, vertical displacement used to measure the range of an echo.

RECEIVER—In radar, a unit that converts rf echoes to video and/or audio signals.

RECEIVER SENSITIVITY—The degree to which a receiver can usefully detect a weak signal; the lower limit of useful signal input to the receiver.

RECOVERY TIME—In a radar, the time interval between the end of the transmitted pulse and the time when echo signals are no longer attenuated by the tr gap.

REFLECTING OBJECT—In radar, an air or surface contact that provides an echo.

REFLEX KLYSTRON—A microwave oscillator that is tuned by changing the repeller voltage.

REFRACTION—The bending of rf waves as the waves pass through mediums of different density.

REFRACTIVE INDEX—In a wave-transmission medium, the ratio between the phase velocity in free space and in the medium.

REGENERATION—See Feedback.

RELATIVE BEARING—Bearing of target measured in a clockwise direction from "dead ahead" of a ship or plane.

RESONANCE CHAMBER—See Echo Box.

RETURN—The rf signal reflected back from a radar target; echo.

RF RADIATION HAZARD—Health hazard caused by exposure to electromagnetic radiation or high-energy particles (ions). Abbreviated RADHAZ.

RING TIME—In radar, the time during which the output of an echo box remains above a specified level.

RINGING—Rf oscillations caused by shock excitation of a resonant circuit (cavity).

SCANNING—Systematic movement of a radar beam to cover a definite pattern or area in space.

SEA CLUTTER—Unwanted echoes from the irregular surface of the sea that appear on a radar indicator.

SEARCH RADAR SYSTEM—Early-warning device that searches a fixed volume of space.

SECOND DETECTOR DEMODULATOR—The part of the receiver that separates the audio or video component from the modulated intermediate frequency.

SECOND-SWEEP ECHOES—See Ambiguous Returns.

SECONDARY LOOP—In a cooling system, the loop that transfers the heat from the heat source (electronic equipment) to the primary loop; usually distilled water.

SELF-SYNCHRONIZED RADAR—A type of radar in which the timing pulses are generated within the transmitter.

SENSITIVITY TIME CONTROL (STC)—A circuit that varies the gain of a receiver as a function of time.

SERIES-CONNECTED DUPLEXER—Configuration in which the tr spark gap is connected in series in one leg of the transmission line one-half wavelength away from the T- junction.

SHADOW—A dead spot (minimum radiation) caused by the physical obstruction of transmitted waves by a feed horn.

SINGLE-ENDED MIXER—See Unbalanced Crystal Mixer.

SINGLE, STATIONARY-LOBE SCANNING SYSTEM—Antenna (with a single, stationary beam) that is rotated to obtain 360-degree coverage.

SLANT RANGE—See Range.

SPECTRUM ANALYZER—A test instrument that provides a visual display of the frequency distribution of a transmitter output.

SPHERICAL WAVEFRONTS—Waves of energy that spread out in concentric circles.

STABILITY—In a magnetron, the ability to maintain normal operating characteristics.

STATUTE MILE—15,280 ft.

STUB—A short section of transmission line connected in parallel with the main transmission line.

SCINTILLATION—Apparent change in target reflectivity. Motion of the target causes radar pulses to bounce off different parts of the target, such as fuselage and wingtip.

SUPERHETERODYNE RECEIVER—A type of receiver that uses a mixer to convert the rf echo to an IF signal for amplification.

SUPPORT SYSTEM—For a radar, a system that provides an auxiliary input, such as dry air, electrical power, or liquid cooling.

SYMMETRICAL MULTIVIBRATOR—Circuit that generates square waves.

SYNCHRONIZER—Circuit that supplies timing signals to other radar components.

TARGET—In radar, a specific object of radar search or detection.

TARGET RESOLUTION—The ability of a radar to distinguish between two or more targets that are close to each other.

THREE-DIMENSIONAL RADAR (3D)—Measures the range, bearing, and altitude of a target.

THYRATRON—Gas tube used as a modulator switching device.

TIMER—See Synchronizer.

TR RECOVERY TIME—Time required for a fired tr or atr tube to deionize to a normal level of conductance.

TRACK—Operational phase of a fire-control or track radar during which the radar beam is kept on the target.

TRACK RADAR—Radar that provides continuous range, bearing, and elevation data by keeping the rf beam on the target.

TRANSMIT-RECEIVE TUBE (TR)—Gas-filled rf switch that is used as a duplexer.

TRANSMITTER—Equipment that generates, amplifies, and modulates electromagnetic energy.

TRANSMITTER FREQUENCY (CARRIER FREQUENCY)—The frequency of the unmodulated output of a transmitter.

TRAVERSE (BEARING) SIGNAL—In a monopulse radar system, the combination of individual lobe signals that represents target offset direction and amplitude from the antenna axis.

TRIGGER GENERATOR—See Synchronizer.

TRIGGER PULSES—In radar, pulses that are used to initiate specific events.

TRUE BEARING—Angle between a target and true north measured clockwise in the horizontal plane.

TRUE NORTH—Geographic north.

TRUNCATED PARABOLOID—A paraboloid reflector that has been cut away at the top and bottom to increase beam width in the vertical plane.

TWO-DIMENSIONAL RADAR (2D)—Measures the range and bearing to a target.

UNBALANCED CRYSTAL MIXER—Circuit consisting of a section of coaxial transmission line one-half wavelength long that is tuned to the difference (intermediate) frequency between the local oscillator and rf echo signals.

VERTICAL PLANE—Imaginary plane that is perpendicular to the horizontal plane.

VIDEO ENHANCEMENT FEATURES—See Antijamming Circuits.

VOLTAGE STANDING WAVE RATIO (VSWR)—In a waveguide, the ratio of the electric field at a maximum point to that of an adjacent minimum point.

WAVEGUIDE DUPLEXER—Consists of tr and atr tubes housed in a resonant cavity attached to a waveguide system.

WAVEMETER—An instrument for measuring the wavelength of an rf wave.

X-RAY EMISSION—Penetrating radiation similar to light, but with shorter wavelength, that can penetrate human tissue.

APPENDIX II

REFERENCE LIST

CHAPTER ONE

Shipboard Electronics Material Officer, NAVEDTRA 10478-A, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1982.

Basic Electronics, Vol. 1, NAVPERS 10087-C, Bureau of Naval Personnel, Washington, DC.

Aviation Fire Control Technician 3 & 2, NAVEDTRA 10387-B, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1977.

Fire Control Technician M 3, NAVEDTRA 10224, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1981.

Fire Control Technician M 3 & 2, NAVEDTRA 10209-A, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1974.

CHAPTER TWO

Aviation Fire Control Technician 3 & 2, NAVEDTRA 10387-B, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1977.

Basic Electronics, Vol. 2, NAVEDTRA 10087-CI, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1979.

Fire Control Technician M 1 & C, NAVPERS 10210, Bureau of Naval Personnel, Washington, D.C.

Fire Control Technician M 3 & 2, NAVEDTRA 10209-A, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1974.

CHAPTER THREE

Shipboard Electronics Material Officer, NAVEDTRA 10478-A, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1982.

Basic Electronics, Vol. 2, NAVEDTRA 10087-C1, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1979.

Aviation Fire Control Technician 3 & 2, NAVEDTRA 10387-B, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1977.

CHAPTER FOUR

Fire Control Technician G 3 & 2, NAVEDTRA 10207-B, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1976.

Electronics Technician 3 & 2, Vol. 2, NAVEDTRA 10195-A, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1979.

Aviation Fire Control Technician 3 & 2, NAVEDTRA 10387-B, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1977.

Fire Control Technician M 3, NAVEDTRA 10224, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1981.

Basic Electronics, Vol 2, NAVEDTRA 10087-C 1, Naval Education and Training Professional Development and Technology Center, Pensacola, FL, 1979.

MODULE 18 INDEX

A

- A-scope, 3-2
- Acquisition (mode), 1-37
- Airborne radar, 1-38
- Airborne radar antennas, 3-20 to 3-21
- Air control panel, 4-17
- Altitude, 1-12
- Ambiguous returns, 1-6 to 1-7
- Amplitron, 2-17
- Antennas, broadside arrays, 3-19
 - directivity, 3-15
 - horn radiators, 3-19
 - parabolic reflectors, 3-16 to 3-18
 - power gain, 3-15
 - reflectors, 3-16 to 3-19
- Antenna beam width, 1-14, 3-15
- Antenna system, 1-20
- Antijamming circuits, 2-41
- Artificial transmission line, 2-10 to 2-11
- Asymmetrical multivibrator, 2-5
- ATR, 2-23 to 2-26
- Automatic gain control (AGC), 2-40
- Average power, 1-7, 4-8 to 4-9
- Azimuth, 1-3

B

- Balanced mixer, 2-34 to 2-37
- Bearing, 1-11 to 1-12
 - relative, 1-11
 - true, 1-3, 1-11
- Bearing resolution, 1-14
- Beat frequency, 1-27
- Blip, o'scope, 3-3
- Blocking, 2-31
- Broadside array, 3-19

C

- Carrier-control approach (CCA), 1-38
- Carrier frequency, 1-5, 4-2
- Clutter, 2-42
- Coherence, 1-29
- Coherent oscillator, 2-18

- Conical scanning, 1-21
- Continuous-wave (cw) transmission, 1-25
- Cooling systems, 4-19 to 4-21
- Crossed-field amplifier, 2-17 to 2-20

D

- Deflection coils, 3-7 to 3-8
- Dehydrators, 4-18 to 4-19
- Deionization time, 2-22, 4-13
- Designation (mode), 1-37
- Detectors, 2-32, 2-38
- Difference frequency, 1-27
- Directional antenna, 3-15
- Directivity, 3-15
- Discriminator, 2-33
- Doppler effect, 1-25 to 1-27
- Dry-air systems, 4-16 to 4-19
- Ducting, 1-17
- Duplexers, 2-20 to 2-30
- Duty cycle, 1-8 to 1-9

E

- Echo, 1-2
- Echo box, 4-5 to 4-8
- Electronic counter-counter measures (ECCM), 2-40 to 2-41
- Electrical power, 4-15 to 4-16
- Elevation angle, 1-3

F

- Fast-time-constant (FTC), 2-41
- Feedhorns, 3-20
- Frequency modulation, 1-27
- Frequency spectrum, 4-2 to 4-5
- Frequency synthesizer, 2-18

G

- Gated AGC, 2-41
- Glow discharge, 2-22
- Ground-controlled approach (GCA), 1-38
- Guidance radar, 1-37

H

Hazards, 4-22 to 4-24
 rf radiation, 4-22
 X-rays, 4-23
Height-finding radar, 1-35
Horn radiators, 3-19
Hybrid ring, 2-28 to 2-30

I

IF amplifier, 2-38
Indicators, 3-1 to 3-14
 A-scope, 3-2
 ppi, 3-4 to 3-10
 rhi, 3-3
Instantaneous automatic gain control (IAGC),
 2-40
Intermediate frequency, 1-20

K

Keep-alive voltage, 2-22, 4-13
Keyed-oscillator transmitter, 2-13 to 2-16
Klystron power amplifier, 2-18

L

Lin-log amplifier, 2-45 to 2-47
Liquid-cooling system, 4-19 to 4-21
Logarithmic receiver, 2-45 to 2-47

M

Magic T, 2-35
Magnetron oscillator, 2-7, 2-13
Master oscillator, 2-4
Minimum discernible signal (MDS), 4-11
Missile-guidance radar, 1-37
Mixers, 2-32 to 2-37
Modulators, 2-6 to 2-11
 hard-tube, 2-8
 line-pulsing, 2-8 to 2-11
Monopulse, lobing, 1-23
 receiver, 2-47 to 2-48
Moisture lapse, 1-17
Moving target indicator (MTI), 2-42 to 2-45

N

Noise, 2-31
Noise figure, 4-11
Nutating, 1-21

P

Parabolic reflectors, 3-16 to 3-18
Parasitic array, 3-17
Peak power, 1-7
Persistence, crt, 3-10
Phantastron, 3-11
Pip, o'scope, 3-3
Plane wavefronts, 3-17
Planned-position indicator (PPI), 3-4 to 3-10
Power, average, 1-7
 gain, antenna, 3-15
 measurement, 4-8 to 4-9
 peak, 1-7, 4-8 to 4-9
Power-amplifier transmitter, 2-16 to 2-20
Preamplifier, 2-33
Pulse-doppler transmission, 1-29
Pulse-forming network, 2-11
Pulse-modulation transmission, 1-28
Pulse-repetition rate (prf), 1-5
Pulse-repetition frequency (prf), 1-5, 1-7 to
 1-10
Pulse-repetition time (prt), 1-6

R

Radar, accuracy, 1-15 to 1-18
 altitude, 1-12
 altimeter, 1-32
 antennas, 3-15 to 3-21
 beams, 1-14, 1-20, 3-15
 bearing, 1-11
 classification and use, 1-30 to 1-32
 components, 1-18 to 1-20
 duplexers, 2-20 to 2-30
 indicators, 3-1 to 3-14
 maintenance, 4-1 to 4-24
 receivers, 2-30 to 2-48
 safety, 4-22 to 4-24
 support systems, 4-14 to 4-21
 synchronizers, 2-1 to 2-6

- Radar, accuracy—Continued
 - transmission methods, 1-25 to 1-30
 - continuous-wave, 1-25 to 1-27
 - frequency-modulation, 1-27
 - pulse-doppler, 1-29
 - pulse-modulation, 1-28 to 1-29
 - types, 1-33 to 1-39
 - airborne, 1-38
 - CCA and GCA, 1-38
 - missile guidance, 1-37
 - search, 1-33 to 1-35
 - track, 1-37
- Radiation hazards, 4-22
- Range, 1-3 to 1-6
- Range gate, 3-11
- Range height indicator (RHI), 3-3
- Range marker, 3-11
- Range resolution, 1-13
- Range step, 3-13
- Ranging circuits, 3-10 3-14
- Receivers, 2-30 to 2-48, 4-9 to 4-12
 - bandwidth, 4-12
 - components, 2-33 to 2-39
 - logarithmic, 2-45 to 2-47
 - monopulse, 2-47 to 2-48
 - moving-target indicator (MTI), 2-42 to 2-45
 - sensitivity, 4-10 to 4-12
 - special circuits, 2-40 to 2-42
 - superheterodyne, 2-32 to 2-39
- Recovery time, 1-5, 4-13 to 4-14
- Reflex klystron, 2-33
- Refraction, 1-17
- Refractive index, 1-17
- Relative bearing, 1-11
- Resolution, 1-13 to 1-14
- Resonance chamber, 4-5
- Rf radiation hazards, 4-22
- Ring time, 4-7 to 4-8

S

- Safety, 4-22 to 4-24

- Scanning, 1-20 to 1-25
- Sea clutter, 2-42
- Search radar, 1-12, 1-33 to 1-36
- Second-sweep echoes, 1-6
- Sensitivity time control (STC), 2-40
- Slant range, 3-2
- Spectrum analyzer, 4-2
- Standing wave measurement, 4-14
- Superheterodyne receiver, 2-32 to 2-39
- Support systems, 4-14 to 4-21
- Synchronizers, 2-1 to 2-6

T

- Thyratron, 2-12
- Timer, 2-1
- TR tube, 2-21 to 2-26
- Tracking radar, 1-37
- Transmission methods, radar, 1-25 to 1-30
- Transmitter frequency, 4-2 to 4-8
- Transmitter power measurement, 4-8 to 4-9
- Transmitters, 2-6 to 2-20
 - keyed-oscillator, 2-13 to 2-16
 - power amplifier, 2-16 to 2-20
- Traverse signal, 1-24
- Trigger generator, 2-1
- Trigger pulses, 2-2
- True bearing, 1-3, 1-11
- Two-dimensional radar, 1-34

V

- Vertical plane, 1-3
- Video enhancement features, 2-39
- Voltage standing wave ratio (vswr), 4-14

W

- Wavefronts, 3-16

X

- X-ray hazard, 4-23

